

Program Notice

FGIS-PN-99-15

7/28/99

HARD RED SPRING WHEAT PROTEIN CALIBRATION UPDATE

1. PURPOSE

Beginning July 31, 1999, the Federal Grain Inspection Service (FGIS) will implement an updated Hard Red Spring (HRS) wheat protein calibration for official near-infrared transmittance (NIRT) instruments. This change will more closely align official HRS wheat NIRT protein results with the standard reference method, Combustion Nitrogen Analyzer (CNA), and is expected to improve the accuracy of official protein measurements for HRS wheat. Periodic calibration updates provide the grain industry with the best possible information from which to determine end-product yield and quality of grain.

2. BACKGROUND

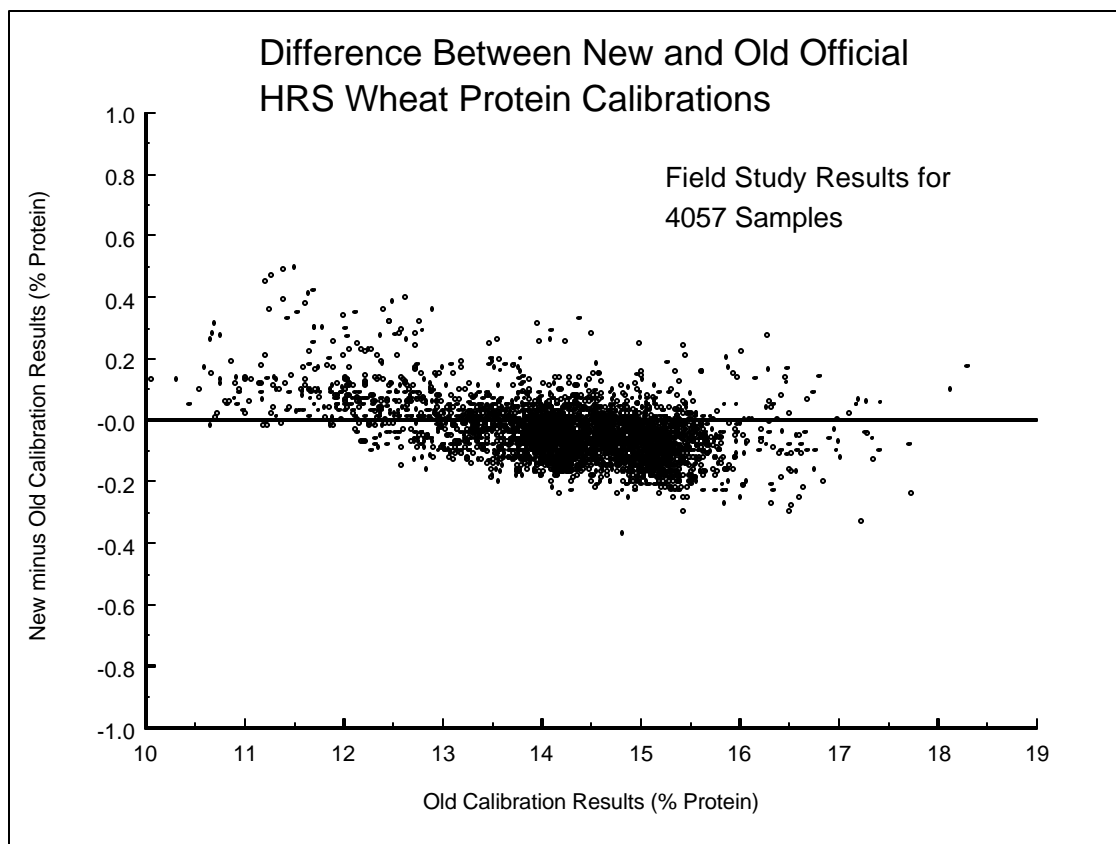
FGIS initiated the use of NIRT instruments for measuring protein content of all classes of wheat on May 3, 1993. To provide the grain industry with the most current and accurate information on protein content, FGIS performs annual reviews of wheat protein calibrations. The existing HRS wheat protein calibration was developed in 1993 and included samples from the 1988 to 1993 crop years. Since then, FGIS has reviewed annually the HRS wheat protein calibration. Based on the most current review, the Agency has decided to update the calibration to improve overall calibration accuracy with respect to CNA. This decision is based on a comparison of results from the NIRT instruments to CNA for over 3,000 HRS wheat samples. The new calibration includes all the samples from the existing calibration and adds samples from the 1994 to 1998 crop years to better reflect current HRS varieties and growing conditions.

3. ANTICIPATED EFFECT

The updated calibration will more closely align the official NIRT protein measurements with the CNA reference method, based on a system-wide average.

FGIS field tested the updated calibration during the past 2 months. The field study included 4,057 market samples of HRS wheat (protein levels ranging from 10.1 percent to 18.3 percent) tested at 20 official inspection locations. The results of the study confirmed earlier FGIS estimates concerning the anticipated effects of the HRS calibration change.

For the field test samples, the new calibration showed an **average** change of -0.04 percent protein with a range of changes being +0.50% to -0.37 percent protein. Protein results in the lower ranges (below 13 percent) tended to increase slightly with the new calibration, and protein results in the upper ranges (above 14 percent) tended to decrease slightly. These changes improve the overall accuracy of official protein predictions with respect to CNA. The following plot shows the differences between new and old HRS protein calibrations for the field test samples.



NOTE: The specific effects of the new calibration will vary from sample to sample and from testing location to testing location. Results for a specific sample at any protein level may be higher or lower with the new calibration than with the old calibration.

4. IMPLEMENTATION OF HRS PROTEIN CALIBRATION UPDATE

FGIS will issue new data disks containing the HRS protein calibration updates to all official testing locations. Additionally, FGIS will provide new baseline values for use with the existing Standard Reference Samples and the standard slope settings for HRS.

Official testing locations are required to update their NIRT instrument(s) with the new HRS protein calibration. FGIS will implement the system-wide HRS protein calibration change on July 31, 1999.

5. QUESTIONS

Direct any questions to the Standards and Procedures Branch at (202) 720-0252.

David Orr, Director
Field Management Division